EXPLORING 19TH CENTURY POPULATION GROWTH THROUGH INTERACTIVE MAPS

TEACHER VERSION

Subject Level:

High School History

Grade Level:

11-12

Approx. Time Required:

60 minutes

Learning Objectives:

- Students will be able to understand and interpret two types of thematic maps.

- Students will be able to determine the value of each type of map.

- Students will be able to explain how geography affects population growth and migration patterns.

STATISTICS IN SCHOOLS

United States Census Bureau

Activity Description

Students will use two data visualization tools to explore U.S. population growth between 1790 and 1890, paying particular attention to growth during the late 19th century, when industries were expanding. Specifically, students will examine population density and city population size.

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Topics:
- Data visualizations
- Maps
- Population change

Skills Taught:
- Comparing and contrasting data
- Reading and interpreting maps

Materials Required

- The student version of this activity, 5 pages
- A digital or physical map that shows the geographic features (e.g., mountains) of the United States
- A teacher computer with Internet access and a projector to display web sites

A computer with Internet access for each student is optional.

Activity Items

This activity uses the following online tools:

- Following the Frontier Line, 1790 to 1890
  www.census.gov/dataviz/visualizations/001
- Increasing Urbanization, Population Distribution by City Size, 1790 to 1890
  www.census.gov/dataviz/visualizations/005

For more information to help you introduce your students to the U.S. Census Bureau, read "*Census Bureau 101 for Students*." This information sheet can be printed and passed out to your students as well.

Standards Addressed

See charts below. For more information, read "*Overview of Education Standards and Guidelines Addressed in Statistics in Schools Activities*."

Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

Standard	Strand	Cluster
CCSS.ELA-LITERACY.RH.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.	RH 11–12 – History/ Social Studies	Integration of Knowledge and Ideas

UCLA National Standards for History: U.S. History Content Standards

Era	Standard
6 – The Development of the Industrial United States (1870–1900)	**Standard 1:** How the rise of corporations, heavy industry, and mechanized farming transformed the American people

UCLA National Standards for History: Historical Thinking Standards

Standard	Description
Standard 3: Historical Analysis and Interpretation	**Draw comparisons across eras and regions in order to define enduring issues.** Students will identify the challenges that resulted from U.S. population shifts primarily during the 19th century.

Bloom's Taxonomy

Students will *analyze* two types of interactive maps about patterns in U.S. population growth from 1790 to 1890.

Creating
Evaluating
Analyzing
Applying
Understanding
Remembering
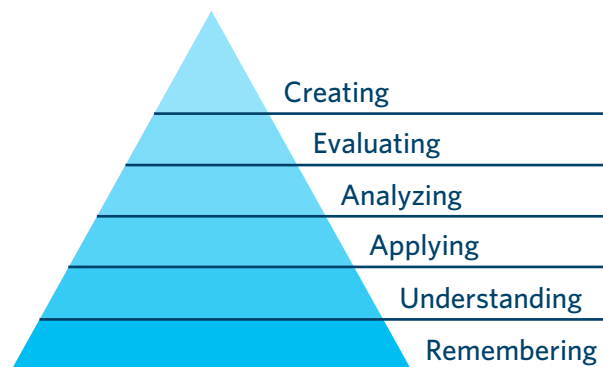
Teacher Notes

Before the Activity

Students must understand the following key terms:

- **Population density** – the number of people per unit of area
- **Thematic map** – a type of map that displays a physical, social, political, cultural, or economic theme across geographic areas
- **Choropleth map** – a type of thematic map that uses different colors to show specific values or ranges of values, usually with darker colors representing greater values and lighter colors representing lesser values
- **Graduated symbol map** – a type of thematic map that uses symbols of different sizes to show specific values or ranges of values, usually with larger symbols representing higher values and smaller symbols representing lower values
- **Urbanization** – a process that results in more people living and working in a city or town

Students should have a basic understanding of the following ideas and concepts specific to the time period:

- U.S. territorial expansion, reaching the Pacific Ocean and including Alaska
- The end of the Civil War and beginning of Reconstruction
- The Industrial Revolution, which led to improved agricultural production and factory mass production
- The improvement of the transportation network through building canals and railroads
- The forced movement of Native Americans from their native lands to reservations
- Immigration, which fed the job market and contributed to urban growth

Teachers should be aware that this activity is designed to be teacher-led, with the teacher displaying the data visualization tools on the screen and students following along. If students have access to computers, then they could complete this activity independently.

During the Activity

Teachers should monitor students as they work.

After the Activity

Teachers should lead a class discussion and/or assign an exit slip (a written student response to questions that teachers pose at the end of an activity) to give students a chance to share what they learned. Teachers could ask:

- What did you observe that confirmed what you already knew about population growth in the United States between 1790 and 1890?

- What did you observe that surprised you?

- How do interactive maps like these data visualizations tell a story?

Extension Idea

Teachers could use other Statistics in Schools activities about similar topics to build on this activity.

Student Activity

Click _here_ to download a printable version for students.

Activity Items

This activity uses the following online tools:

- Following the Frontier Line, 1790 to 1890
  www.census.gov/dataviz/visualizations/001
- Increasing Urbanization, Population Distribution by City Size, 1790 to 1890
  www.census.gov/dataviz/visualizations/005

Student Learning Objectives

- I will be able to understand and interpret two types of thematic maps.
- I will be able to determine the value of each type of map.
- I will be able to explain how geography affects population growth and migration patterns.

Part 1 – Examine Population Density

Watch as your teacher explores **Following the Frontier Line, 1790 to 1890** on the screen. This map shows the population density in different areas of the United States after each decennial census through 1890.

1. Write three observations and three questions about what you notice when the slider at the bottom of the tool moves.

   Student observations will vary but could include: More areas on the map turn brown as the slider moves from 1790 to 1890, indicating an overall increase in the number of people per square mile over time; and the number of dark brown spots overall increases over time, indicating the expansion into new areas. Student questions will vary but could include what life was like in the 1890s and earlier in states such as Arizona or Nevada, where the map shows populations of only six people per square mile.

2. What kind of map is this, and how do you know?

   This is a type of thematic map called a choropleth map, which is apparent because it uses shading to show different population density values.

3. What do the different colors on this map signify?

   Darker colors represent greater population density values and lighter colors represent smaller population density values.

4. Watch as your teacher checks the "Selected Cities" box and returns to the 1790 data, then name a city that had at least 50 people per square mile that year.

Student answers will vary but should include Washington, Philadelphia, New York, or Boston.

5. Where was the U.S. population concentrated in 1790, and what might have been one reason for that concentration?

In 1790, the U.S. population was concentrated along the East Coast. Student reasoning will vary but could include that immigrants were arriving at port cities in the area.

6. Now compare the 1870 map with the 1790 map, explaining two major changes in historical context.

Student answers will vary but could include that many people moved west and to cities in search of employment.

7. Observe the data for "Selected Cities" in 1870. How does the shading vary around the cities, and what does that mean as far as population density?

Student answers will vary but could include that for areas around cities in the northeastern and upper midwestern United States, the shading is relatively dark at their centers, getting lighter as you move outward. This means that the hearts of those urban areas saw the highest population densities in 1870.

8. Note the lightly shaded diagonal area on the 1870 map, generally between Pittsburgh and Atlanta. Which geographic feature could account for the lower population density in that area, and why? (It may help to refer to the U.S. map that your teacher provided.)

The Appalachian Mountains, because they are less suited for dense population development.

Part 2 – Examine City Population Size

Watch as your teacher explores **Increasing Urbanization, Population Distribution by City Size, 1790 to 1890** on the screen. This map shows U.S. cities of two sizes, 5,000 to 99,999 people and 100,000 or more people, after each decennial census through 1890.

1. Write three observations and three questions about what you notice when the slider at the bottom of the tool moves.

Student observations will vary but could include that the number of yellow and red dots increases between 1790 and 1890, indicating a growth in the number of major cities in the United States during that time. Student questions will vary but could include how particular cities became so heavily populated, such as what specifically drew people to Denver for it to reach a population of 100,000 by 1890, or what might have contributed to the westward movement of dots.

2. What kind of map is this, and how do you know?

This is a type of thematic map called a graduated symbol map, which is apparent because it uses symbols (dots) of different sizes (and colors) to show different city populations.

3. What do the different circles on this map signify?

The larger red circle indicates cities with 100,000 or more people, and the smaller orange circle indicates cities with 5,000 to 99,999 people.

4. During which decade between 1790 and 1890 did a city first see a population of at least 100,000?

1820

Teachers could point out to students that the dot is for New York City.

5. What do you notice about the location of the cities with populations between 5,000 and 99,999 in 1790? How many were there?

All nine were on the East Coast.

6. How many cities with populations over 100,000 were there in 1790?

0

7. The 1790 map is divided into tan and gray areas — with gray representing U.S. territory. Looking at the U.S. map that your teacher provided, identify the geographic feature that appears to separate the two areas.

The Mississippi River

8. Between the map and the timeline is a graph labeled "Percentage of city dwellers living in cities of 100,000 people or more." When your teacher clicks the "play" button, you will see that the line on this graph goes up. What was the percentage in 1790?

0 percent

9. Now compare the 1870 map with the 1790 map, explaining two major changes in historical context.

Student answers will vary but could include that by 1870, the northeastern and upper midwestern United States were much more urbanized and the cities were larger, because more people were moving to cities for jobs in factories.

10. Identify a few of the largest urban areas on the East Coast in 1870.

Student answers will vary but could include New York City, Brooklyn, Philadelphia, Baltimore, and Boston.

Teachers could tell students that in 1870, the largest urban area was New York City, whose population was 942,292; that the second-largest urban area was Philadelphia, whose population was 674,022; and that the third-largest urban area was Brooklyn, whose population was 396,099.

11. Look again at the "percentage of city dwellers" graph. What was the percentage in 1870?

More than 40 percent

Part 3 – Analyze the Tools and Draw Conclusions

1. Determine the benefits and drawbacks of each of the data visualizations — **Following the Frontier Line and Increasing Urbanization** — for showing how the U.S. population grew from 1790 to 1890.

   Student answers will vary. A benefit of both tools is their ability to show changes in population distribution over time, and a drawback of both is the limited information they provide that can make it hard to draw conclusions about the time period based on the visualizations alone.

2. What are three factors that affected the growth and distribution of the U.S. population from 1790 to 1890?

   Student answers will vary but could include employment opportunities, proximity to water and ports, and immigration.

3. By 1890, people living in cities of 100,000 or more people made up a significant proportion of all city dwellers. This reflected a shift from an agriculture-based society to an industry-based society, especially in the Northeast and around the Great Lakes.

   a. Identify and explain the benefits that the United States experienced as a result of this growth.

   Student answers will vary but could include a larger labor force, a thriving economy, movement toward becoming a world power, a more diverse geographic environment with different resources, and an increase in international trade.

   b. Identify and explain the challenges that the United States experienced as a result of this growth.

   Student answers will vary but could include overcrowding in urban areas, increased demand for resources and on the infrastructure (roads, hospitals, schools, etc.), increased pollution, and greater dependency on foreign countries.

4. Using what you learned from the two maps, explain how geographical features can affect population growth and migration patterns.

   Student answers will vary but could include that certain geographical features, such as the Appalachian Mountains, can affect growth because they prevent people from migrating in a certain direction or in a particular area. Also, people gather in places where the resources meet their needs (near water, farmland, etc.).